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Boston, MA 02110				
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/509,319  
Filing Date: September 27, 2004  
Appellant(s): ROTH ET AL.

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Robert Holthus  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed October 27, 2009 appealing from the Office action mailed April 29, 2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

4,806,450	Hofmann et al	2-1989
5,753,362	KAWASE et al	5-1998

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al (US 4,806,450) in view of Kawase et al (US 5,753,362).

Hofmann teaches a coating composition comprising a (meth)acrylic copolymer having a molecular weight of 15,000-500,000 (col 3, lines 37+) and an OH value of 20-100mg KOH/g (col 3, line 10). The copolymer comprises (meth)acrylic acid, (meth)acrylate, and hydroxylalkyl (meth)acrylate, wherein some of the carboxyl groups of the copolymer are esterified by reaction with glycidyl (meth)acrylate (abstract), preferably 10-60% (col 3, line 6). The copolymer comprises 8-30wt% acrylic acid (abstract).

Hofmann does not teach that the reaction product should further comprise an unsubstituted phenol such that the phenol to (meth)acrylic ester ratio is within the claimed range. However, Kawase teaches a methacrylic acid copolymer may have its glass transition temperature optimized by utilizing a phenol methacrylate such as benzyl

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methacrylate (col 13, lines 18+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to polymerize benzyl methacrylate into the polymer taught in Hofmann in the claimed relative amounts in order to optimize the glass transition temperature of the coating.

With regards to claim 8, it is known that the molecular weight of a polymer affects its processability. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the molecular weight of the polymer taught in Hofmann in order to optimize the processability of the composition.

#### **(10) Response to Argument**

**(i) Hofmann et al teach away from polymerizing other co-monomers into its copolymer that “consists of” specific co-monomers at specific amounts.**

Appellant argues that Hofmann consistently emphasizes and repeatedly teaches a copolymer “consists of” three specific groups of co-monomers at certain amounts.

Said argument is noted but is not persuasive for the following reasons:

- (i) The teaching that the co-monomer “consists” of three specific co-monomers limits the scope of Hofmann’s claimed invention but does not affect the obviousness determination based upon the teachings of Hofmann.

Applicant’s argument that Hoffman’s copolymers “consists” of three specific co-monomers fails to explain why the skilled artisan, given the teachings of Hofmann and Kawase, would not have considered the claimed invention to be obvious. While Hoffman discloses his invention “consists” of three specific

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- monomers, there is no teaching or suggestion that the proposed modification would have destroyed the teachings of Hofmann or the utility of the copolymer for its intended purpose. Thus, while it is conceded that Hofmann does not expressly disclose or suggest polymerizing any other co-monomers besides those specifically recited, such a deficiency is virtually always the case for primary reference utilized in a 35 U.S.C.103(a) rejection wherein a secondary reference is utilized to render obvious a comonomer.
- (ii) Hofmann teaches the acrylate component may comprise alkyl acrylates (as claimed in the pending application) AND vinyl aromatics (col 4, lines 11+). It is noted the claimed benzyl (meth)acrylate comprises a six member aromatic ring linked to a vinyl group through a (-CO-O-) linkage. The preferred vinyl aromatic (styrene) is a six member aromatic ring linked to a vinyl group (no linkage). Thus, the benzyl aromatic is chemically similar to the alkyl acrylates and the vinyl aromatics utilized as one of the components taught in Hofmann. The skilled artisan would have therefore concluded that benzyl (meth)acrylate may be utilized in the copolymer of Hofmann without teaching away and/or destroying the teachings of Hofmann.
- (iii) Appellant argues the "consists of" language would have prevented the skilled artisan from modifying the copolymer taught by Hofmann because Hofmann teaches the particular combination of comonomers provides advantageous and improved properties (see col 3, lines 1-5). Said teaching is noted but is not persuasive. First, applicant has not demonstrated that the proposed

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combination would destroy said advantageous and improved properties. To the contrary, the skilled artisan would expect the copolymer rendered obvious by the prior art to have similar and/or identical properties based upon the chemical similarities between the substances being substituted (alkyl acrylates and vinyl aromatics) and the added monomers (benzyl methacrylate).

The examiner further notes that the benzyl methacrylate may be added to the photosensitive composition taught in Hoffman as the reactive monomer (see column 5, lines 28+) and may comprise up to 95wt% of the total composition (col 6, lines 19+). Thus, the inclusion of benzyl methacrylate is not likely to affect the improved properties of the claimed composition.

**(ii) Polymerizing Kawase et al's benzyl methacrylate in Hoffman et al's polymer to optimize glass transition temperature is not adequate support to establish Appellant's claimed reaction product as prima facie obvious.**

According to Appellant, Kawase fails to rectify the deficiencies of Hoffman because the examiner's reasoning fails to support a reasonable expectation that performing the chemical change would cause Hofmann's copolymer to be more easily processable. Specifically, Appellant argues that Kawase teaches the use of the benzyl methacrylate will raise the glass transition temperature of the resulting copolymer. Said argument is not persuasive because Hoffman teaches the polymer is preferably solid at

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room temperature. Thus, an increase in glass transition temperature is not contrary to the teachings of Hoffman.

Appellant further argues raising the glass transition temperature would decrease processability of the copolymer. The examiner respectfully disagrees; raising the glass transition temperature would raise the temperature at which the polymer would solidify- which could result in decreased processing times. Appellant attempts to argue processability “at room temperature” but said arguments are moot since they mischaracterize the examiner’s position; the examiner never took a position that processability ***at room temperature*** was desired.

According to appellant, the proposed modification will render the copolymer hard and rigid and inflexible at lower temperatures. Said argument is noted but is not persuasive because counsel’s argument cannot take the place of evidence. There is no evidence of record the benzyl methacrylate will change the rigidity/flexibility of the copolymer taught in Hoffman.

(iii) **One would not further polymerize Kawase’s benzyl (meth)acrylate into Hoffman et al’s copolymer since it would render the copolymer unsatisfactory for its intended purpose.**

Appellant argues if one were to follow the examiner’s proposed modification to Hoffman’s copolymer, one would destroy the “advantageous and improved properties of alkaline solubility and water insolubility.” Said argument is noted but is not persuasive for the reasons given above. Specifically, said argument is not supported by evidence;



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appellant has provided no evidence to support the conclusion that the proposed modification would destroy the desired properties of Hoffman. Appellant argues the alkaline solubility would be affected by the proposed modification since the relative group which could be deprotonated would be less. Said argument is not persuasive because said result (decreased methacrylic acid group) is not inherent to the proposed modification. The proposed modification could replace the alkyl (meth)acrylates and vinyl aromatics as taught in Hoffman with benzyl methacrylate; the acrylic acid concentration is not being altered.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Primary Examiner, Art Unit 1794

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Supervisory Patent Examiner, Art Unit 1794

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